Listing of the Claims:

This listing of the claims will replace all prior versions, and listing, of claims in the application:

CLAIMS:

2 (cancelled).

3 (currently amended). A method for determining attitude, the method comprising:

a) transmitting a signal through a radiating means which moves ~~predeterminately~~ through three-dimensional space with a predetermined movement, such that a cyclic Doppler is superimposed upon the transmitted signal;

b) receiving said transmitted signal at a receiving means which moves ~~predeterminately~~ through three-dimensional space with a predetermined movement, such that a cyclic Doppler is superimposed upon the received signal;

c) adjusting ~~the~~ said predetermined movement of said receiving means to bring said cyclic Doppler superimposed upon said received signal to a predetermined Doppler value such that said receiving means slews into alignment with said radiating means; and

d) determining the attitude of said receiving means based upon the required adjustment to said predetermined movement ~~required~~of said receiving means.

4 (previously presented). The method of claim 3, wherein said predetermined Doppler value of step (c) is a minimum.

5 (currently amended). The method of claim 3, wherein said ~~predeterminate~~ predetermined movement of said receiving means in step (b) is a replica of said ~~predeterminate~~ predetermined movement of said radiating means in step (a).

6 (currently amended). A method for determining attitude, the method comprising:

a) transmitting a signal through a radiating means which moves ~~predeterminately~~ through three-dimensional space with a predetermined movement, such that a cyclic Doppler is superimposed upon the transmitted signal;

b) receiving said transmitted signal at a receiving means which moves ~~predeterminately~~ through three-dimensional space with a predetermined movement, such that a cyclic Doppler is superimposed upon the received signal;

c) analysing said cyclic Doppler superimposed upon said received signal to determine a Doppler pattern; and

d) determining the attitude of said receiving means by matching said determined Doppler pattern to pre-defined Doppler patterns associated with known relative attitudes of said radiating means and said receiving means.

11 (currently amended). A method for determining attitude, the method comprising:

a) transmitting a plurality of signals from a plurality of spatially distributed transmission means configured with at least one or more radiating means, said radiating means configured to move through three-dimensional space with identical predetermined ~~motion~~movement, with each of said plurality of signals assigned to one of said radiating means, such that an identical cyclic Doppler is superimposed upon each transmitted signal;

b) receiving said plurality of transmitted signal at a receiving means which moves ~~predeterminately~~ through three-dimensional space with a predetermined movement, such that a cyclic Doppler is superimposed upon the received signal;

c) adjusting ~~the~~ said predetermined movement of said receiving means to bring said cyclic Doppler superimposed upon said received signal signals to a predetermined value such that said receiving means slews into alignment with said radiating means; and

d) determining the attitude of said receiving means based upon the required adjustment to said predetermined movement ~~required~~of said receiving means.

19 (currently amended). A method for determining the attitude of a mobile apparatus, the method comprising the steps of:

a) transmitting a positioning signal through radiating means, said radiating means moving its phase centre through three-dimensional space ~~with predefined motion~~with a predetermined movement at a predetermined interval, such that a first cyclic doppler is superimposed upon said positioning signal;

b) receiving said positioning signal through receiving means, said receiving means moving its phase centre through three-dimensional space ~~with predefined motion~~ with a predetermined movement at a predetermined interval, such that a second cyclic doppler is observed by said receiving means;

c) measuring a combined cyclic doppler observed by said receiving means, said combined cyclic doppler comprising said first cyclic doppler and said second cyclic doppler;

d) adjusting said predetermined interval of said receiving means, such that said combined cyclic Doppler is minimised, said receiving means slews into alignment with said radiating means and said receiving means is brought into spatial correlation with said radiating means;

e) determining the attitude of said mobile apparatus based on ~~said~~ the required adjustment to said predetermined movement ~~required~~of said receiving means.

~~such that said receiving means and said radiating means are brought into spatial correlation.~~

20 (previously presented). A method for determining the attitude of a mobile apparatus according to claim 19, wherein said predetermined interval of said receiving means is substantially similar to said predetermined interval of said radiating means.

21 (previously presented). A method for determining the attitude of a mobile apparatus according to claim 19, said method further comprising the steps of:

a) dedicating a principal axis to said radiating means within a reference frame;

b) dedicating a principal axis to said mobile apparatus within its body frame;

c) dedicating a principal axis to said receiving means relative to said mobile apparatus principal axis;

d) measuring a time from when said receiving means phase centre traverses through said reference frame principal axis to when said receiving means phase centre traverses through said receiving means principal axis; and

e) calculating the attitude of said mobile apparatus principal axis based on said measured time and said relationship between said receiving means principal axis and said mobile apparatus principal axis.

22 (previously presented). A method for determining the attitude of a mobile apparatus according to claim 19, said method further comprising the steps of:

a) dedicating a principal axis to said radiating means within a reference frame;

b) dedicating a principal axis to said mobile apparatus within its body frame;

c) dedicating a principal axis to said receiving means relative to said mobile apparatus principal axis;

d) measuring the angular offset of said receiving means principal axis with respect to said reference frame principal axis at the beginning of said predetermined interval of said receiving means; and

e) calculating the attitude of said mobile apparatus principal axis based on said measured angular offset and said relationship between said receiving means principal axis and said mobile apparatus principal axis.

23 (previously presented). A method for determining the attitude of a mobile apparatus according to claim 19, said method further comprising the steps of:

a) measuring carrier phase measurements of said positioning signal at a receiver carrier phase measurement rate, said receiver carrier phase measurement rate being faster than said predetermined interval of said radiating means;

b) updating a carrier tracking loop within said receiving means at a receiver tracking loop update rate, said receiver carrier tracking loop update rate being slower than or equal to said predetermined interval of said radiating means;

c) comparing said carrier phase measurements to a digital controlled oscillator within said carrier tracking loop;

d) aggregating said carrier phase measurements to determine a combined cyclic doppler value.

24 (currently amended). A method for determining the attitude of a mobile apparatus, the method comprising the steps of:

a) transmitting a plurality of positioning signals through a plurality of radiating means, each of said plurality of radiating means moving its phase centre through three-dimensional space ~~with predefined motion~~with a predetermined motion at a predetermined interval, such that a first cyclic doppler is superimposed upon each of said plurality of positioning signals;

b) receiving said plurality of positioning signals through a plurality of receiving means, each of said plurality of receiving means moving its phase centre through three-dimensional space ~~with predefined motion~~ with a predetermined motion at a predetermined interval, such that a second cyclic doppler is observed by each of said plurality of receiving means;

c) measuring a plurality of combined cyclic doppler observed by said plurality of receiving means, each of said combined cyclic doppler comprising a first cyclic doppler superimposed upon one of said plurality of positioning signals and a second cyclic doppler observed by one of said plurality of receiving means;

d) differencing said first cyclic doppler from each of said plurality of positioning signals with said second cyclic doppler observed by each of said plurality of receiving means;

e) adjusting ~~said predefined motion~~the predetermined motion of the respective phase centres of said plurality of receiving means ~~phase centres~~ to match said ~~predefined motion~~ predetermined motion of the respective phase centres of said plurality of radiating means ~~phase centres~~, such that said receiving means slews into alignment with said radiating means thereby to minimise said plurality of combined cyclic Doppler ~~is minimised~~;

f) determining the attitude of said plurality of said mobile apparatus based on ~~said~~ the required adjustment to said predetermined motion ~~required~~of said receiving means.

25 (currently amended). A method for determining the attitude of a mobile apparatus according to claim 24, wherein said adjustment to said predetermined motion of said radiating means and said receiving means brings the respective phase centres of said plurality of receiving means ~~and~~ into spatial correlation with the respective phase centres of said plurality of radiating means ~~into spatial correlation~~.

26 (previously presented). A method for determining the attitude of a mobile apparatus according to claim 24, wherein said predetermined interval of said receiving means is substantially similar to said predetermined interval of said radiating means.

27 (Currently amended). A method for determining the attitude of a mobile apparatus, the method comprising the steps of:

a) transmitting a positioning signal through radiating means, said radiating means moving its phase centre through three-dimensional space ~~with predefined motion~~ with a predetermined movement at a predetermined interval, such that a first cyclic doppler is superimposed upon said positioning signal;

b) receiving said positioning signal through receiving means, said receiving means moving its phase centre through three-dimensional space ~~with predefined motion~~ with a predetermined motion at a predetermined interval, such that a second cyclic doppler is observed by said receiving means;

c) continuously measuring a combined cyclic doppler observed by said receiving means, said combined cyclic doppler comprising said first cyclic doppler and said second cyclic doppler;

d) continuously matching said combined cyclic doppler with predetermined doppler patterns associated with said receiving means;

e) determining the attitude of said receiving means based on said matched predetermined doppler patterns.

28 (previously presented). A method for determining the attitude of a mobile apparatus according to claim 27, wherein said predefined doppler patterns are stored in memory means of said receiving means.

29 (previously presented). A method for determining the attitude of a mobile apparatus according to claim 27, said method further comprising the steps of:

a) measuring carrier phase measurements of said positioning signal at a receiver carrier phase measurement rate, said receiver carrier phase measurement rate being faster than said predetermined interval of said radiating means;

b) updating a carrier tracking loop within said receiving means at a receiver tracking loop update rate, said receiver carrier tracking loop update rate being slower than or equal to said predetermined interval of said radiating means;

c) comparing said carrier phase measurements to a digital controlled oscillator within said carrier tracking loop;

d) aggregating said carrier phase measurements to determine a combined cyclic doppler value.

30 (previously presented). A method for determining the attitude of a mobile apparatus according to claim 27, wherein said carrier phase measurements of said positioning signal are in-phase and quadrature (I & Q) measurements.

31 (previously presented). A method for determining the attitude of a mobile apparatus according to claim 27, wherein said predefined motion of said radiating means is contained in a volume within a radius of one-quarter of said positioning signal's wavelength.